



GeoInsight®

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MEMORANDUM

To: Alex Sherrin

From: Michael J. Webster
and Christene Binger

Date: April 21, 2015

Project No. 2491-001

Re: Focused Review of Environmental Status of
60 Olympia Avenue in Woburn, Massachusetts

The objective of this Memorandum is to provide a brief summary of the remedial and monitoring events conducted between July 2014 and November 2014.

July 2014

The focused injection event conducted on July 11, 2014 is summarized below:

- 100 gallons of 4% sodium permanganate was injected into monitoring wells MW-217M and MW-014S (50 gallons per well) using disposable polyethylene tubing and a peristaltic pump.
- A purple check (i.e., visual monitoring of sodium permanganate presence in groundwater) was performed on accessible monitoring wells.

The focused injection event conducted on July 15, 2014 is summarized below:

- 133 gallons of approximately 8% to 10% permanganate solution was injected into monitoring well MW-217M using disposable polyethylene tubing and a peristaltic pump.
- Approximately 37 gallons of rinsate (1% to 5% permanganate solution) was injected into injection wells H2 (9.2 gallons), G2 (7.5 gallons), and injection trenches 4 and 5 (20 gallons).

- Groundwater samples were collected and analyzed for volatile organic compounds (VOCs) from four monitoring wells that have had trichloroethylene (TCE) concentrations in groundwater above 100 micrograms per liter in the past (March 2014 groundwater sampling event):
 - MW-202S
 - MW-206D
 - MW-207S
 - MW-208D

Results for the four wells sampled on July 15, 2014 are summarized in Table 1. The groundwater analytical results for monitoring wells sampled were consistent with the results from the March 2014 groundwater sampling event, which indicates the decreasing TCE concentration trend appears stable. Plots of the TCE concentrations over time in the monitoring wells mentioned above are attached.

September 2014

A comprehensive purple check was performed on September 29, 2014. During this event, seven monitoring wells were sampled, including MW-217M, for VOC analysis. The samples collected were preserved with hydrochloric acid and the permanganate solution in each sample was neutralized using ascorbic acid. TCE concentrations decreased or remained stable in monitoring wells MW-217M, MW-201S, and MW-212S. TCE concentrations slightly increased in monitoring wells MW-201D, MW-203D, MW-211D, and MW-014S. TCE concentrations detected in the groundwater samples collected on September 29, 2014 are summarized in Table 1 and the attached TCE concentration vs. time plots. Purple color was observed in the seven monitoring wells that were sampled on September 29, 2014.

November 2014

The focused injection event conducted between November 11 and 13, 2014 is summarized below:

- Direct push and gravity injection methods were used.
- Approximately 11,575 gallons of 1% sodium permanganate solution were injected inside and outside the containment cell.
- Approximately 9,831 gallons were injected inside the cell via direct push, injection wells, and horizontal injection trenches.
- Approximately 1,744 gallons were injected outside the cell in areas close to monitoring wells MW-216M and MW-217M. Table 2 summarizes the permanganate solution volumes injected in 2014.
- The attached Site Plan shows the locations where the direct push injection points were advanced during the November injection event.

Scheduled Work for 2015

A comprehensive purple check and focused groundwater monitoring event will be performed in the spring of 2015. Updated groundwater monitoring trend plots and analytical tables will be provided following the spring 2015 groundwater monitoring event.

ATTACHMENTS:

TABLES

Table 1 - Summary of TCE Concentrations – MW-200 Series Performance Monitoring Wells

Table 2 - Summary of Sodium Permanganate Injection Events

FIGURES

Figure 1 - Site Locus

Figure 2 - Site Plan

Figure 3 - Direct Push Injection Locations

Figure 4 - Sodium Permanganate and TCE Concentration vs. Time Plots



TABLES

TABLE 1
SUMMARY OF TCE CONCENTRATIONS - MW-200 SERIES PERFORMANCE MONITORING WELLS
60 OLYMPIA AVENUE
WOBURN, MASSACHUSETTS

SHALLOW PERFORMANCE MONITORING WELLS - INSIDE TREATMENT CELL						
Well Identification	Limited Screen Interval (feet bgs)	Max TCE Concentration (µg/L)	Most Recent TCE Concentration (µg/L)	Most Recent Sampling Date	% Reduction	Observation/Status
MW-200S	6.5-9.5	14,000	<100	03/07/13	99	Reduction achieved, monitor for performance goal
MW-201S	6.5-9.5	330	6.8	09/29/14	98	Reduction achieved, monitor for performance goal
MW-202S	6.5-9.5	6,200	2,300	07/15/14	79	Increasing trend in TCE, extend monitoring period (recent increase from March to July - 1,000 ppb)
MW-203S	3-6	500	2.5	03/21/14	100	Reduction achieved, monitor for performance goal
MW-204S	7-10	2,400	<10	03/21/14	100	Reduction achieved, monitor for performance goal
MW-205S	4-7	12	1.9	03/21/14	84	Reduction achieved, monitor for performance goal
MW-206S	4-7	8,200	<1	03/21/14	100	Reduction achieved, monitor for performance goal
MW-207S	6-9	3,700	550	07/15/14	54	Fluctuating, recent decrease from 1,700 to 550 (March to July 2014), extend monitoring
MW-208S	4-7	1,100	<1	03/21/14	100	Reduction achieved, monitor for performance goal
MW-209S	7-10	520	11	03/21/14	98	Reduction achieved, monitor for performance goal
MW-210S	7-10	2,400	<1	03/21/14	100	Reduction achieved, monitor for performance goal
MW-211S	6.5-9.5	39	<1	03/21/14	97	Reduction achieved, monitor for performance goal
92 AVERAGE % REDUCTION						

DEEP PERFORMANCE MONITORING WELLS - INSIDE TREATMENT CELL						
Well Identification	Limited Screen Interval (feet bgs)	Max TCE Concentration (µg/L)	Most Recent TCE Concentration (µg/L)	Most Recent Sampling Date	% Reduction	Observation/Status
MW-200D	14-17	870,000	<50	03/21/14	100	Reduction achieved, alternative focus area, historical presence of DNAPL
MW-201D	14-17	18,000	2,200	09/29/14	88	Extend monitoring period, increase from 120 to 2,200 ppb (March to September 2014)
MW-202D	14-17	89,000	<100	03/21/14	100	Reduction achieved, monitor for performance goal
MW-203D	14-17	47,000	2,000	09/29/14	96	Extend monitoring period, increase from 54 to 2,000 ppb (March to September 2014)
MW-204D	14-17	460,000	12	03/21/14	100	Decrease in TCE, monitor in 2014
MW-205D	14-17	120,000	<10	03/21/14	100	Sustained decrease in TCE, monitor for performance goal
MW-206D	14-17	100,000	4,000	07/15/14	96	Overall decreasing trend in TCE, slight increase from 3,700 to 4,000 ppb (March to July 2014) extend monitoring period
MW-207D	14-17	8,100	<10	03/21/14	100	Reduction achieved, monitor for performance goal
MW-208D	14-17	170,000	7,400	07/15/14	95	Overall decreasing trend in TCE, slight decrease from 8,200 to 7,400 ppb (March to July 2014) extend monitoring period
MW-209D	14-17	1,600	24	03/21/14	99	Reduction achieved, monitor for performance goal
MW-210D	14-17	650	<10	03/21/14	98	Reduction achieved, monitor for performance goal
MW-211D	14-17	3,300	110	09/29/14	97	Decrease in TCE, monitor in 2015
MW-212S	10-13	2,500	<1	09/29/14	100	Reduction achieved, monitor for performance goal
98 AVERAGE % REDUCTION						

TABLE 1
SUMMARY OF TCE CONCENTRATIONS - MW-200 SERIES PERFORMANCE MONITORING WELLS
60 OLYMPIA AVENUE
WOBURN, MASSACHUSETTS

SHALLOW EAST SIDE PERFORMANCE MONITORING WELLS - OUTSIDE TREATMENT CELL						
Well Identification	Limited Screen Interval (feet bgs)	Max TCE Concentration (µg/L)	Most Recent TCE Concentration (µg/L)	Most Recent Sampling Date	% Reduction	Observation/Status
MW-215S	10-13	6,200	<1.0	03/21/14	100	Sustained decrease in TCE
MW-216S	10-13	120,000	270	03/21/14	100	Decreasing trend in TCE, extend monitoring period
MW-217S	10-13	840	<1.0	03/21/14	100	Decrease in TCE
100 AVERAGE % REDUCTION						

MID DEPTH EAST SIDE PERFORMANCE MONITORING WELLS - OUTSIDE TREATMENT CELL						
Well Identification	Limited Screen Interval (feet bgs)	Max TCE Concentration (µg/L)	Most Recent TCE Concentration (µg/L)	Most Recent Sampling Date	% Reduction	Observation/Status
MW-215M	20-23	190	190	03/21/14	0	Depth interval not targeted, 2014 monitoring area
MW-216M	20-23	10	<1.0	03/21/14	90	Depth interval not targeted, 2014 monitoring area
MW-217M	25-28	1,600	260	09/29/14	84	Reduction achieved, monitor for performance goal
58 AVERAGE % REDUCTION						

SOUTHWEST CORNER PERFORMANCE MONITORING WELLS - OUTSIDE TREATMENT CELL						
Well Identification	Limited Screen Interval (feet bgs)	Max TCE Concentration (µg/L)	Most Recent TCE Concentration (µg/L)	Most Recent Sampling Date	% Reduction	Observation/Status
MW-13	7-17	7,100	<10	03/21/14	100	Sustained decrease in TCE
MW-213S	10-13	6,000	18	03/21/14	100	Decrease in TCE, monitor in 2014
MW-014S	5-15	810	33.0	09/29/14	96	Reduction achieved, monitor for performance goal
98 AVERAGE % REDUCTION						

NOTES:

1. Values in micrograms per liter (µg/L).
2. TCE = Trichloroethene.
3. ND = Not detected above laboratory practical quantitation limits.
4. <25 = not detected in sample at concentration above reporting limit.
5. bgs = Below ground surface.
6. DNAPL = dense non-aqueous phase liquid.
7. % Reduction calculated using the Max TCE Concentration and the Most Recent TCE Concentration.

TABLE 2
SUMMARY OF SODIUM PERMANGANATE INJECTION EVENTS
60 OLYMPIA AVENUE
WOBURN, MASSACHUSETTS

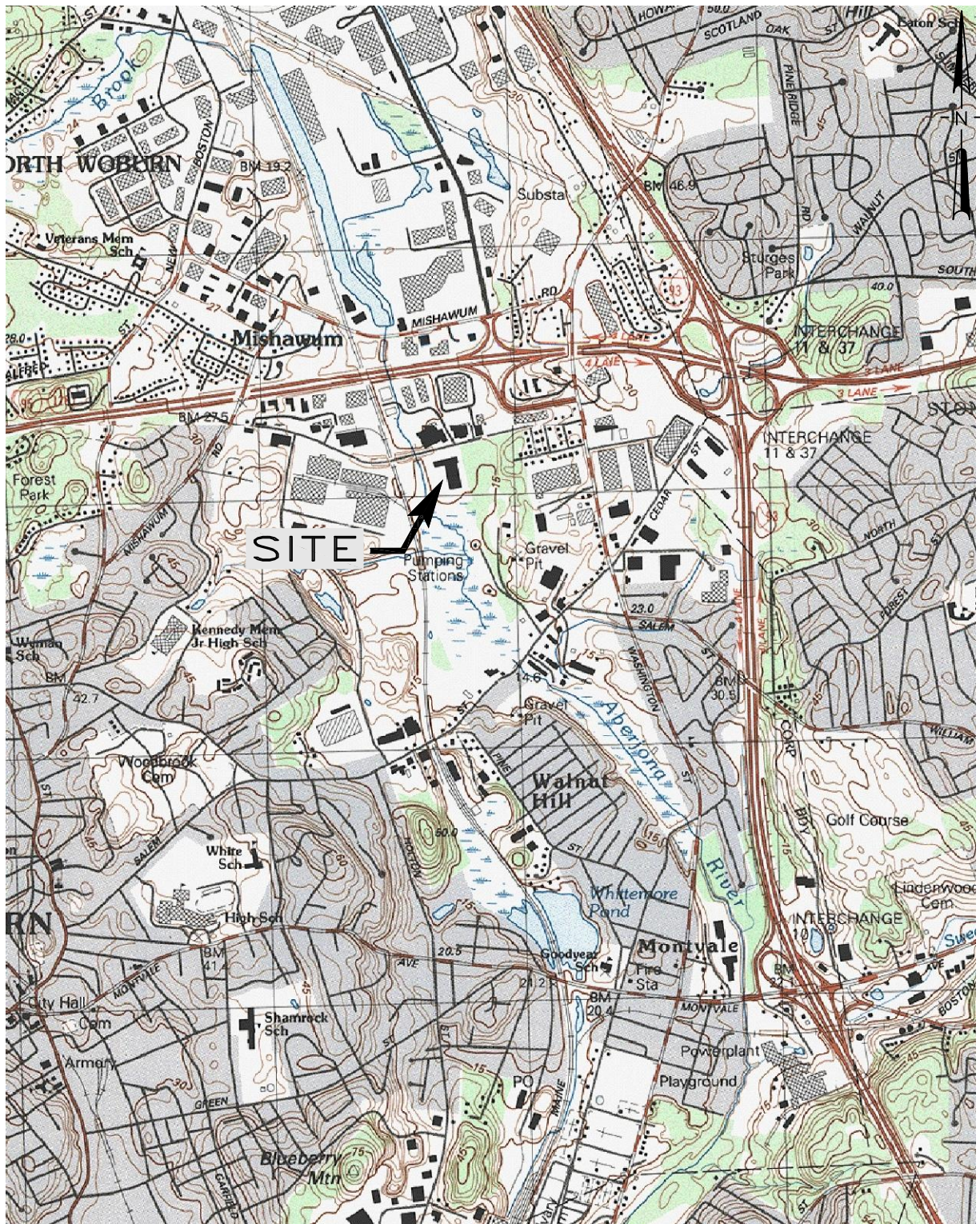
Event	Method	Approximate Strength (Percent Solution)	Volume (Gallons)						Total
			Trenches	Injection Wells	DPs	East Side DPs	SW Corner DPs	MW Wells	
2005	Gravity	40%							8,464
September 1	Trenches	40%	1,059	---	---	---	---	---	1,059
September 15	Trenches	40%	1,077	---	---	---	---	---	1,077
September 29	Injection Wells	40%	244	914	---	---	---	---	1,158
October 13	Trenches	40%	1,093	---	---	---	---	---	1,093
November 3	Injection Wells	40%	26	975	---	---	---	---	1,001
November 10	Trenches	40%	1,010	---	---	---	---	---	1,010
November 22	Injection Wells	40%	62	906	---	---	---	---	968
December 16	Injection Wells and Trenches	40%	401	698	---	---	---	---	1,099
2007	Pressure and Gravity	10 to 20%							580
September 6	K-Series Injection Wells	10 to 20%	---	384	---	---	---	---	384
September 6	Injection Wells	20%	---	196	---	---	---	---	196
2008	Direct Push and Gravity	1 to 5%							16,413
May 20 to 22	Direct Push (DP) Locations, Injection Wells, and Trenches	5%	330	609	2,338	---	---	---	3,277
October 13 and 15	Direct Push Locations East of Treatment Cell	1%	---	---	---	970	---	---	970
October 15 to 17	Direct Push Locations, Injection Wells, and Trenches	2 to 4%	913	21	1,832	---	---	---	2,766
November 10 to 14	Direct Push Locations, Injection Wells, and Trenches	2 to 3%	412	85	4,472	---	---	---	4,969
December 8 to 11	Direct Push Locations and Trenches	2 to 3%	351	---	4,080	---	---	---	4,431
2009	Direct Push and Gravity	0.5 to 3%							13,432
April 21 to 23	Direct Push Locations and Trenches	2 to 3%	102	---	2,496	1,614	---	---	4,212
May 19 to 22	Direct Push Locations, Injection Wells, and Trenches	2 to 3%	612	37	4,110	---	---	---	4,759
June 24	Injection Wells and Trenches	0.5 to 3%	240	45	---	---	---	---	285
November 16 to 20 and 23	Direct Push Locations, Injection Wells, and Trenches	2 to 3%	124	65	2,042	1,296	649	---	4,176
2010	Direct Push and Gravity	0.5 to 1%							34,326
June 7 to 11	Direct Push Locations, Injection Wells, and Trenches	0.5 to 1%	4,410	576	3,940	2,235	1,763	---	12,924
July 29	Injection Wells and Trenches	0.5%	150	---	---	---	---	---	150
November 1 to 5 and 8 to 10	Direct Push Locations, Injection Wells, and Trenches	0.5%	9,128	10	7,368	2,620	2,126	---	21,252
2011	Direct Push and Gravity	0.5 to 1%							39,396
June 13 to 17, 20, and 21	Direct Push Locations, Injection Wells, and Trenches	0.5 to 1%	8,917	191	6,860	2,511	2,156	---	20,635
November 15 to 18, 21 and 22	Direct Push Locations, Injection Wells, and Trenches	0.5 to 1%	8,380	20	7,827	1,507	1,027	---	18,761
2012	Direct Push and Gravity	1%							16,269
June 25 to 29 and July 2 and 3	Direct Push Locations, Injection Wells, and Trenches	1%	835	5,631	5,196	3,305	1,302	---	16,269
2012	Direct Push and Gravity	1%							11,302
November 12 to 16	Direct Push Locations, Injection Wells, and Trenches	1%	3,880	365	1,149	5,908	---	---	11,302
2013	Direct Push and Gravity	1%							9,512
November 18 to 23	Direct Push Locations, Injection Wells, and Trenches	1%	5,367	1,112	2,330	703	---	---	9,512
2014	Pressure	5%							11,845
July 11 and 15	Monitoring Wells, Injection Wells, and Trenches	5%	20	17	---	---	---	233	270
November 10 to 13	Direct Push and Locations, Injection Wells, and Trenches	1%	5,705	26	4,100	1,744	---	---	11,575
Total:			54,848	12,882	60,140	24,413	9,023	233	161,539

NOTES:

1) A total of 218 55-gallon, and four 5-gallon containers of 40% sodium permanganate solution have been injected at the Site.

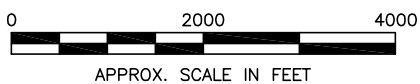


FIGURES



SOURCE:

USGS BOSTON NORTH, MASSACHUSETTS
TOPOGRAPHIC QUADRANGLE DATED 1985
CONTOUR INTERVAL: 3 METERS

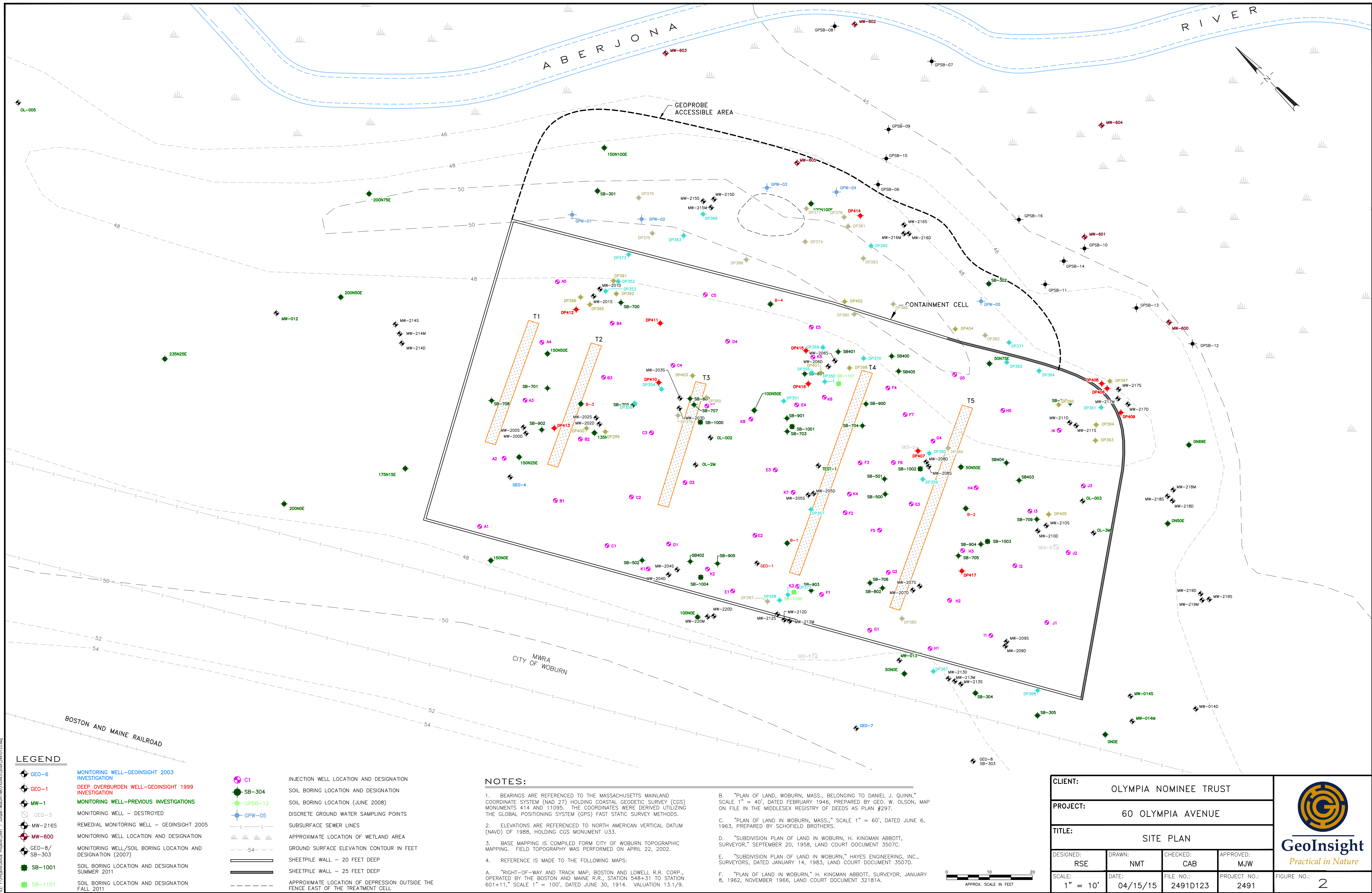


CLIENT: OLYMPIA NOMINEE TRUST			
PROJECT: 60 OLYMPIA AVENUE WOBURN, MASSACHUSETTS			
TITLE: SITE LOCUS			
DESIGNED: JF	DRAWN: NMT	CHECKED: JT	APPROVED: MJW
SCALE: 1" = 2000'	DATE: 12/19/07	FILE NO.: 2491-LOCUS	PROJECT NO.: 2491-002




GeoInsight
Practical in Nature

FIGURE NO.: 1



CLIENT:		OLYMPIA NOMINEE TRUST	
PROJECT:		60 OLYMPIA AVENUE	
TITLE:		SITE PLAN	
DESIGNED:	DRAWN:	CHECKED:	APPROVED:
RSE	NMT	CAB	MJW
SCALE:	DATE:	FILE NO.:	PROJECT NO.:
1" = 10'	04/15/15	2491D123	2491



GeoInsight
Practical in Nature

FIGURE NO.: 2

LEGEND

- GEO-6

GEO-1

MW-1

GEO-3

MW-216S

MW-600

GEO-8/
SB-303

SB-1001

SB-1101
- MONITORING WELL—GEOINSIGHT 2003 INVESTIGATION

DEEP OVERBURDEN WELL—GEOINSIGHT 1999 INVESTIGATION

MONITORING WELL—PREVIOUS INVESTIGATIONS

MONITORING WELL — DESTROYED

REMEDIAL MONITORING WELL — GEOINSIGHT 2005

MONITORING WELL LOCATION AND DESIGNATION

MONITORING WELL/SOIL BORING LOCATION AND DESIGNATION (2007)

SOIL BORING LOCATION AND DESIGNATION SUMMER 2011

SOIL BORING LOCATION AND DESIGNATION FALL 2011
- C1

SB-304

GPSB-12

GPW-Q5
- INJECTION WELL LOCATION AND DESIGNATION

SOIL BORING LOCATION AND DESIGNATION

SOIL BORING LOCATION (JUNE 2008)

DISCRETE GROUND WATER SAMPLING POINTS

SUBSURFACE SEWER LINES

APPROXIMATE LOCATION OF WETLAND AREA

GROUND SURFACE ELEVATION CONTOUR IN FEET

SHEETPILE WALL — 20 FEET DEEP

SHEETPILE WALL — 25 FEET DEEP

APPROXIMATE LOCATION OF DEPRESSION OUTSIDE THE FENCE EAST OF THE TREATMENT CELL

NOTES:

1. BEARINGS ARE REFERENCED TO THE MASSACHUSETTS MAINLAND COORDINATE SYSTEM (NAD 27) HOLDING COASTAL GEODETIC SURVEY (CGS) MONUMENTS 414 AND 1109S. THE COORDINATES WERE DERIVED UTILIZING THE GLOBAL POSITIONING SYSTEM (GPS) FAST STATIC SURVEY METHODS.

2. ELEVATIONS ARE REFERENCED TO NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988, HOLDING CGS MONUMENT U33.

3. BASE MAPPING IS COMPILED FORM CITY OF WOBURN TOPOGRAPHIC MAPPING. FIELD TOPOGRAPHY WAS PERFORMED ON APRIL 22, 2002.

4. REFERENCE IS MADE TO THE FOLLOWING MAPS:

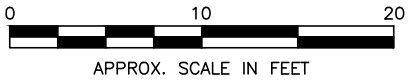
A. "RIGHT-OF-WAY AND TRACK MAP, BOSTON AND LOWELL R.R. CORP., OPERATED BY THE BOSTON AND MAINE R.R., STATION 548+31 TO STATION 601+11," SCALE 1" = 100', DATED JUNE 30, 1914. VALUATION 13.1/9.
- B. "PLAN OF LAND, WOBURN, MASS., BELONGING TO DANIEL J. QUINN," SCALE 1" = 40', DATED FEBRUARY 1946, PREPARED BY GEO. W. OLSON, MAP ON FILE IN THE MIDDLESEX REGISTRY OF DEEDS AS PLAN #297.

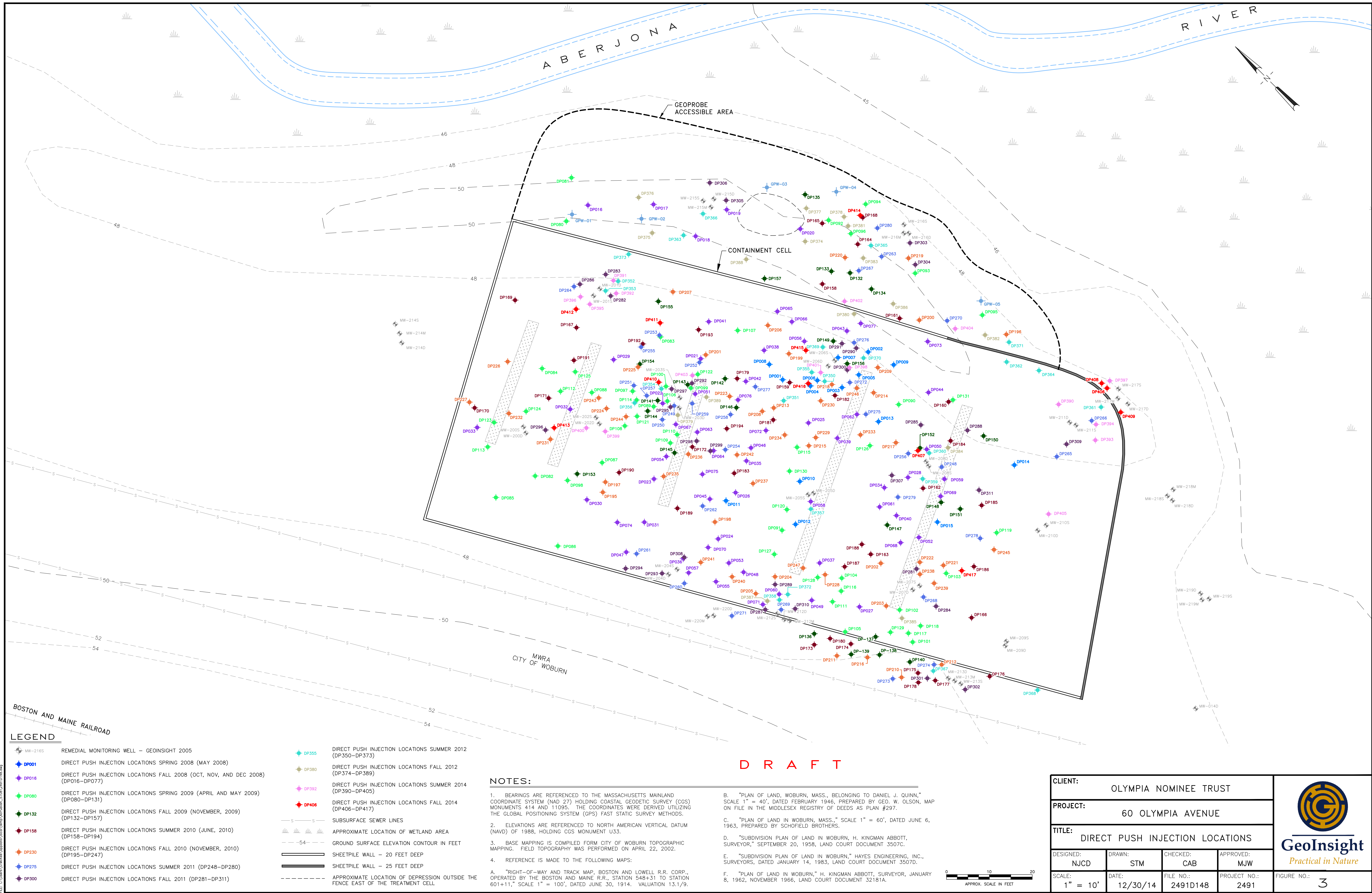
C. "PLAN OF LAND IN WOBURN, MASS.," SCALE 1" = 60', DATED JUNE 6, 1963, PREPARED BY SCHOFIELD BROTHERS.

D. "SUBDIVISION PLAN OF LAND IN WOBURN, H. KINGMAN ABBOTT, SURVEYOR," SEPTEMBER 20, 1956, LAND COURT DOCUMENT 3507C.

E. "SUBDIVISION PLAN OF LAND IN WOBURN," HAYES ENGINEERING, INC., SURVEYORS, DATED JANUARY 14, 1983, LAND COURT DOCUMENT 3507D.

F. "PLAN OF LAND IN WOBURN," H. KINGMAN ABBOTT, SURVEYOR, JANUARY 8, 1962, NOVEMBER 1966, LAND COURT DOCUMENT 32181A.





BOSTON AND MAINE RAILROAD

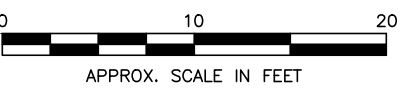
LEGEND

- MW-2165 REMEDIAL MONITORING WELL - GEOSIGHT 2005
- DP001 DIRECT PUSH INJECTION LOCATIONS SPRING 2008 (MAY 2008)
- DP016 DIRECT PUSH INJECTION LOCATIONS FALL 2008 (OCT, NOV, AND DEC 2008) (DP016-DP077)
- DP080 DIRECT PUSH INJECTION LOCATIONS SPRING 2009 (APRIL AND MAY 2009) (DP080-DP131)
- DP132 DIRECT PUSH INJECTION LOCATIONS FALL 2009 (NOVEMBER, 2009) (DP132-DP157)
- DP158 DIRECT PUSH INJECTION LOCATIONS SUMMER 2010 (JUNE, 2010) (DP158-DP194)
- DP230 DIRECT PUSH INJECTION LOCATIONS FALL 2010 (NOVEMBER, 2010) (DP195-DP247)
- DP275 DIRECT PUSH INJECTION LOCATIONS SUMMER 2011 (DP248-DP280)
- DP300 DIRECT PUSH INJECTION LOCATIONS FALL 2011 (DP281-DP311)
- DP355 DIRECT PUSH INJECTION LOCATIONS SUMMER 2012 (DP350-DP373)
- DP380 DIRECT PUSH INJECTION LOCATIONS FALL 2012 (DP374-DP389)
- DP392 DIRECT PUSH INJECTION LOCATIONS SUMMER 2014 (DP390-DP405)
- DP406 DIRECT PUSH INJECTION LOCATIONS FALL 2014 (DP406-DP417)
- SUBSURFACE SEWER LINES
- APPROXIMATE LOCATION OF WETLAND AREA
- GROUND SURFACE ELEVATION CONTOUR IN FEET
- SHEETPILE WALL - 20 FEET DEEP
- SHEETPILE WALL - 25 FEET DEEP
- APPROXIMATE LOCATION OF DEPRESSION OUTSIDE THE FENCE EAST OF THE TREATMENT CELL

NOTES:

- BEARINGS ARE REFERENCED TO THE MASSACHUSETTS MAINLAND COORDINATE SYSTEM (NAD 27) HOLDING COASTAL GEODETIC SURVEY (CGS) MONUMENTS 414 AND 11095. THE COORDINATES WERE DERIVED UTILIZING THE GLOBAL POSITIONING SYSTEM (GPS) FAST STATIC SURVEY METHODS.
- ELEVATIONS ARE REFERENCED TO NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988, HOLDING CGS MONUMENT U33.
- BASE MAPPING IS COMPILED FROM CITY OF WOBURN TOPOGRAPHIC MAPPING. FIELD TOPOGRAPHY WAS PERFORMED ON APRIL 22, 2002.
- REFERENCE IS MADE TO THE FOLLOWING MAPS:
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 - C. "PLAN OF LAND IN WOBURN, MASS.," SCALE 1" = 60', DATED JUNE 6, 1963, PREPARED BY SCHOFIELD BROTHERS.
 - D. "SUBDIVISION PLAN OF LAND IN WOBURN, H. KINGMAN ABBOTT, SURVEYOR," SEPTEMBER 20, 1958, LAND COURT DOCUMENT 3507C.
 - E. "SUBDIVISION PLAN OF LAND IN WOBURN," HAYES ENGINEERING, INC., SURVEYORS, DATED JANUARY 14, 1983, LAND COURT DOCUMENT 3507D.
 - F. "PLAN OF LAND IN WOBURN," H. KINGMAN ABBOTT, SURVEYOR, JANUARY 8, 1962, NOVEMBER 1966, LAND COURT DOCUMENT 32181A.

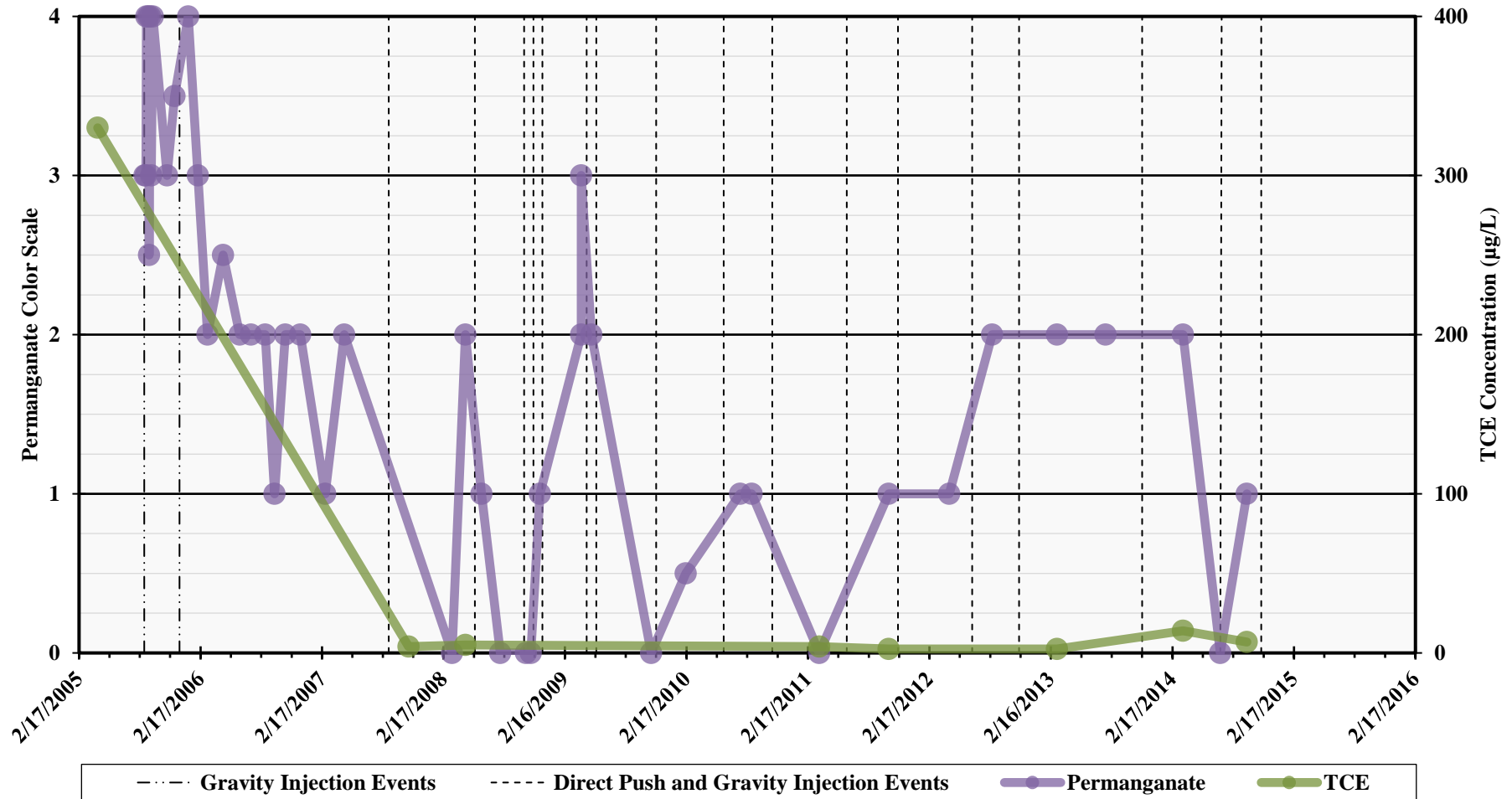
DRAFT



CLIENT:		OLYMPIA NOMINEE TRUST	
PROJECT:		60 OLYMPIA AVENUE	
TITLE:		DIRECT PUSH INJECTION LOCATIONS	
DESIGNED:	DRAWN:	CHECKED:	APPROVED:
NJCD	STM	CAB	MJW
SCALE:	DATE:	FILE NO.:	PROJECT NO.:
1" = 10'	12/30/14	2491D148	2491
FIGURE NO.:			3



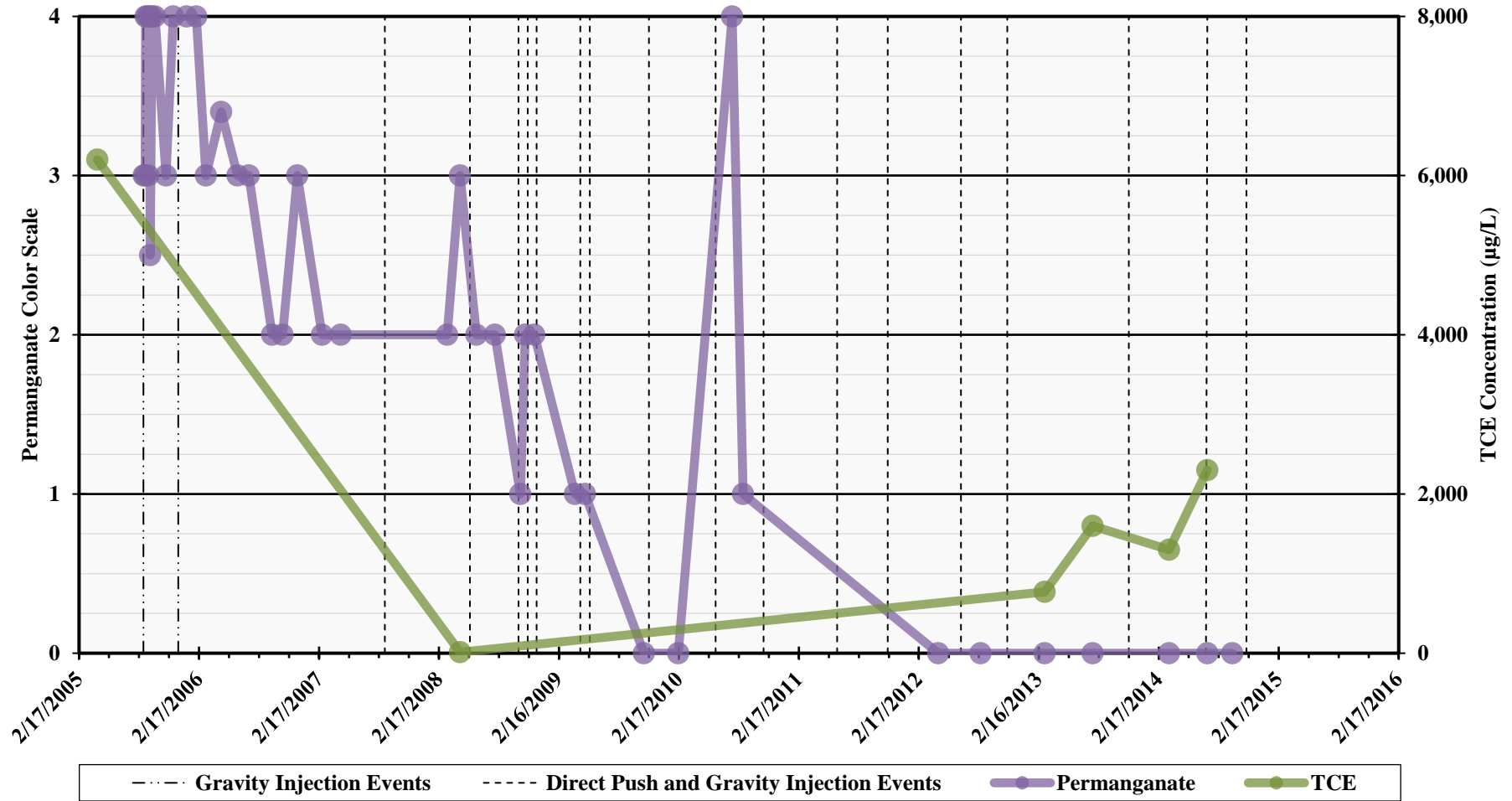
FIGURE 4
WELL MW-201S
SODIUM PERMANGANATE AND TCE CONCENTRATIONS VS. TIME IN SHALLOW WELLS



NOTES:

1. TCE = trichloroethylene.
2. µg/L = micrograms per liter.

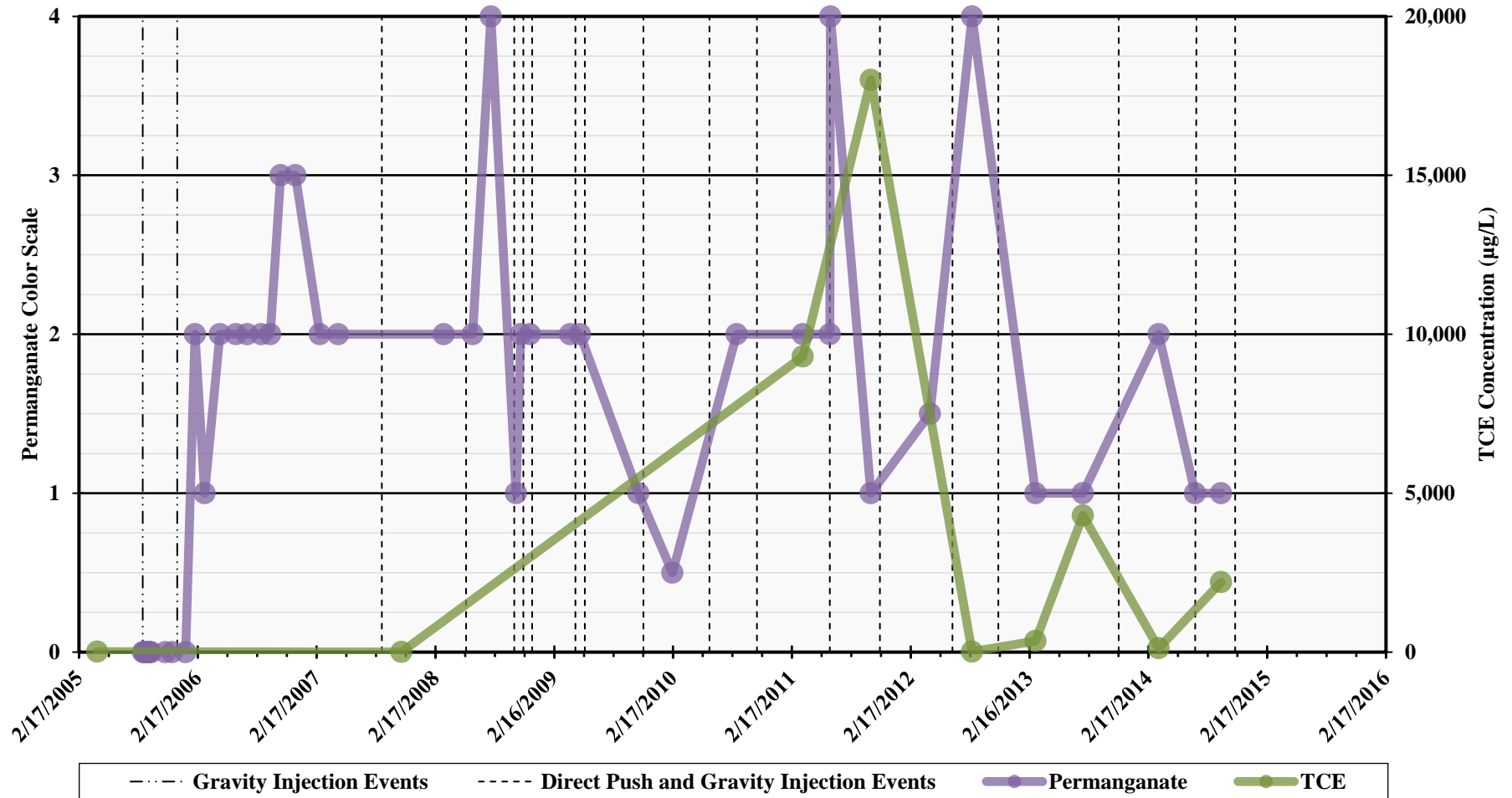
FIGURE 4
WELL MW-202S
SODIUM PERMANGANATE AND TCE CONCENTRATIONS VS. TIME IN SHALLOW WELLS



NOTES:

1. TCE = trichloroethylene.
2. µg/L = micrograms per liter.

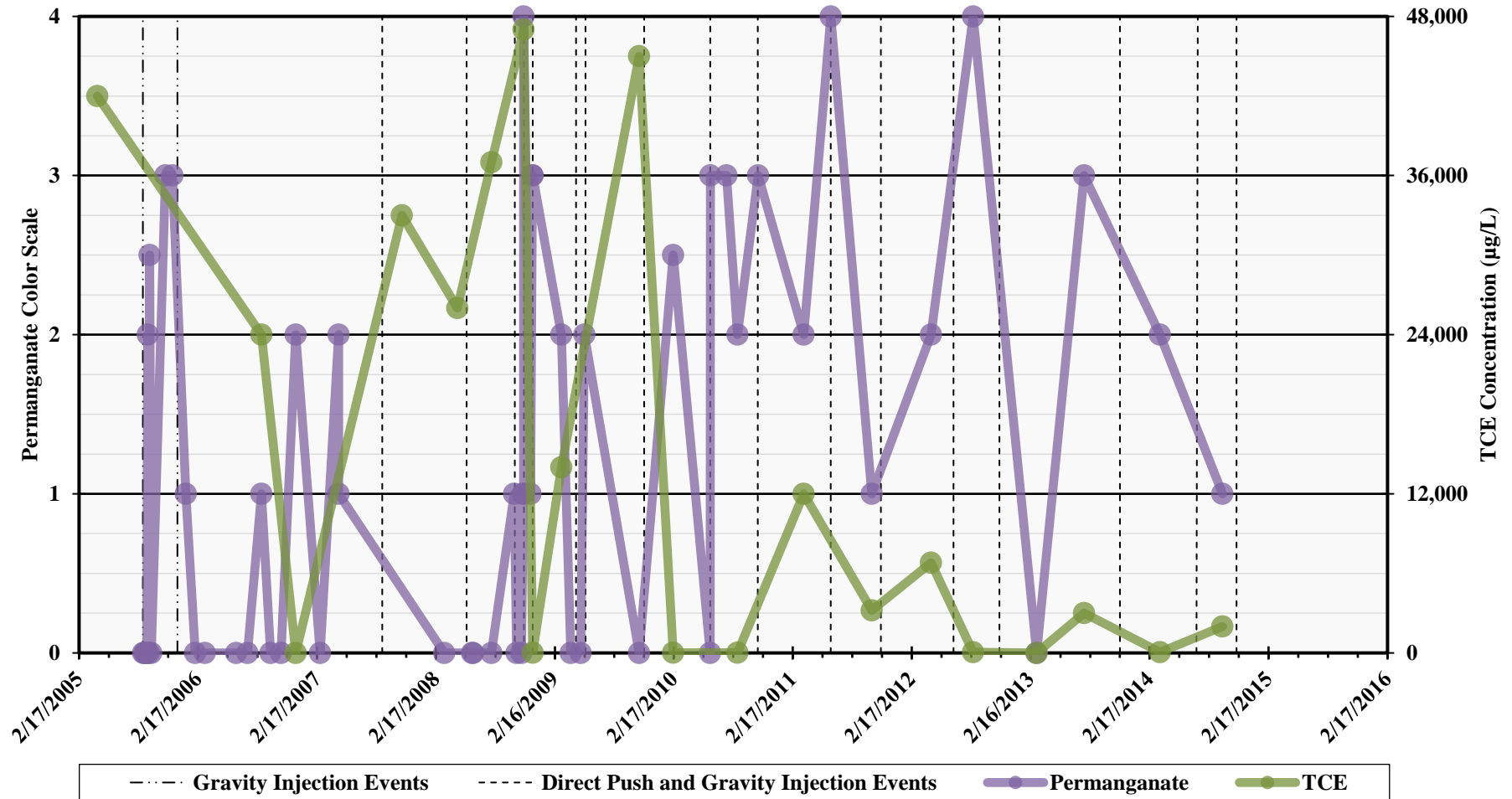
FIGURE 4
WELL MW-21D
SODIUM PERMANGANATE AND TCE CONCENTRATIONS VS. TIME IN DEEP WELLS



NOTES:

1. TCE = trichloroethylene.
2. µg/L = micrograms per liter.

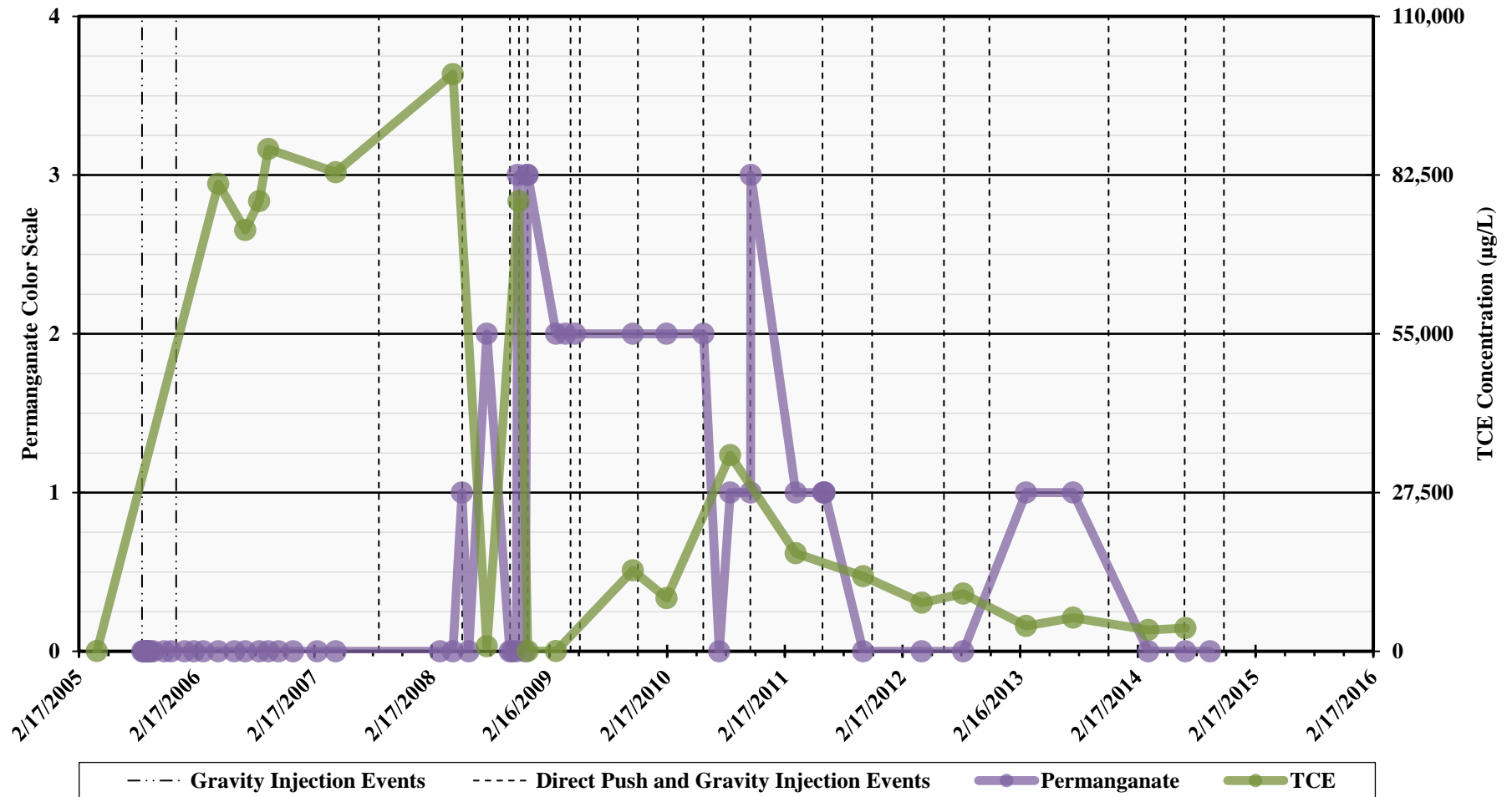
FIGURE 4
WELL MW-23D
SODIUM PERMANGANATE AND TCE CONCENTRATIONS VS. TIME IN DEEP WELLS



NOTES:

1. TCE = trichloroethylene.
2. µg/L = micrograms per liter.

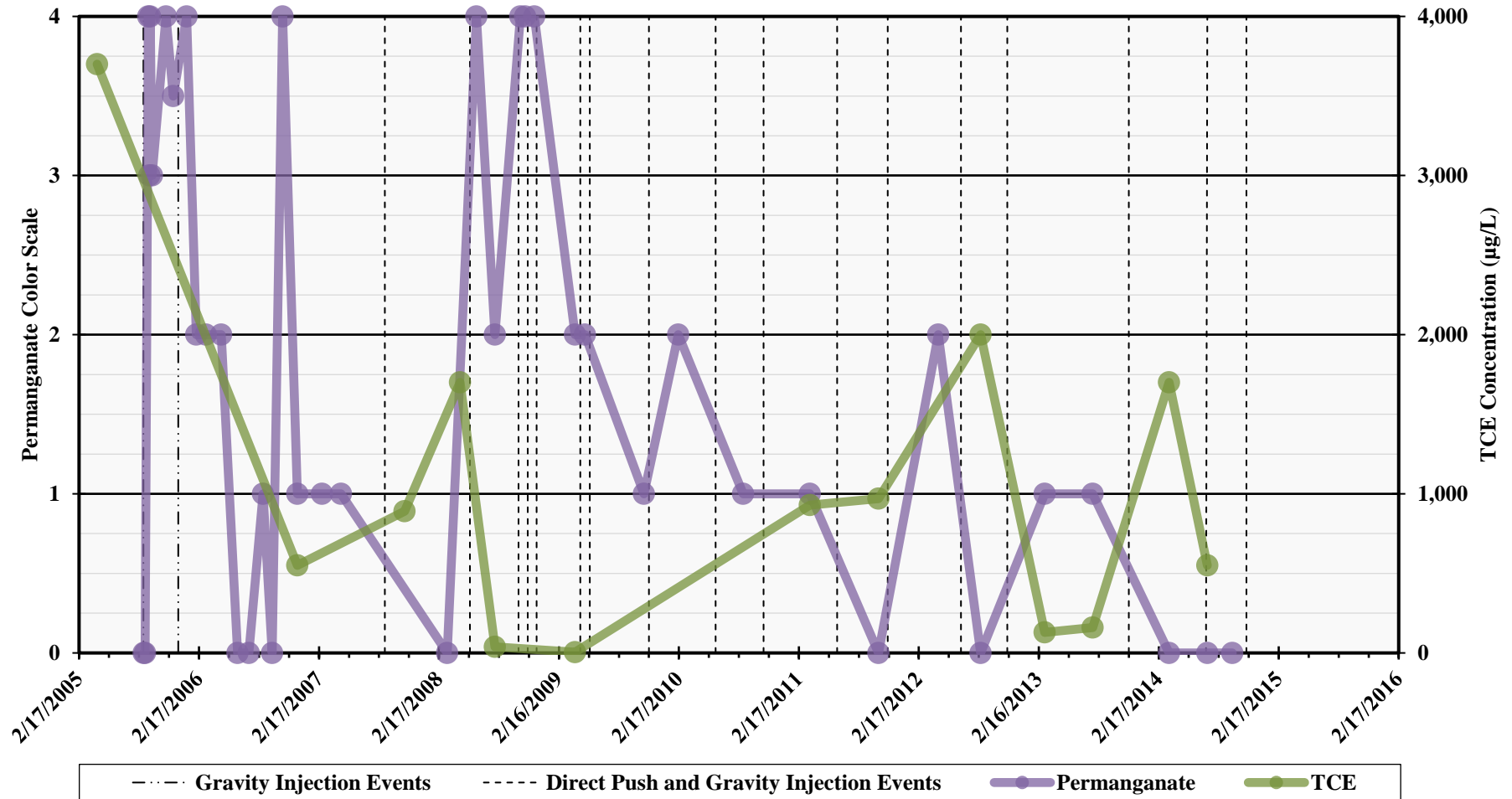
FIGURE 4
WELL MW-206D
SODIUM PERMANGANATE AND TCE CONCENTRATIONS VS. TIME IN DEEP WELLS



NOTES:

1. TCE = trichloroethylene.
2. µg/L = micrograms per liter.

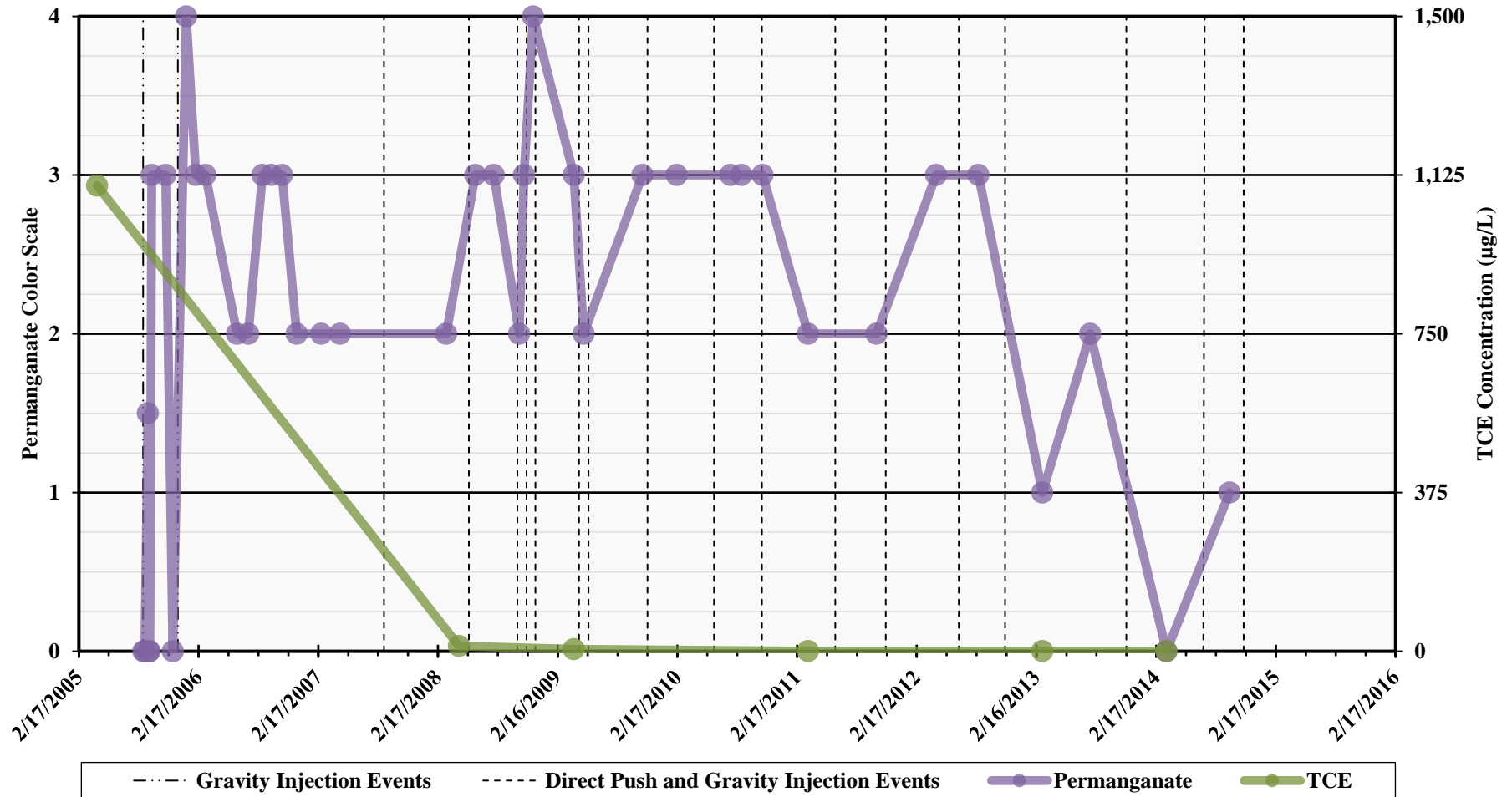
FIGURE 4
WELL MW-207S
SODIUM PERMANGANATE AND TCE CONCENTRATIONS VS. TIME IN SHALLOW WELLS



NOTES:

1. TCE = trichloroethylene.
2. µg/L = micrograms per liter.

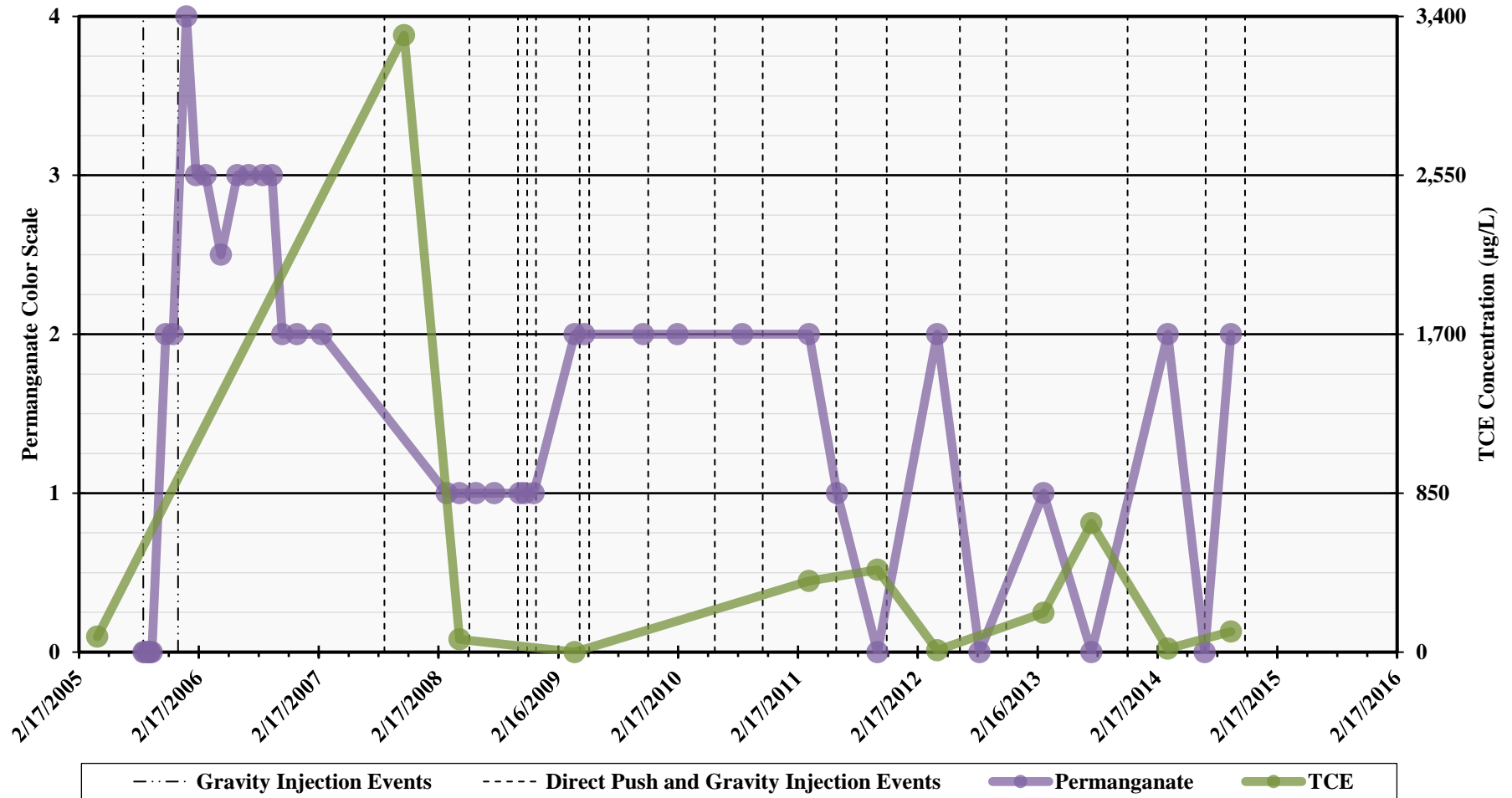
FIGURE 4
WELL MW-208S
SODIUM PERMANGANATE AND TCE CONCENTRATIONS VS. TIME IN SHALLOW WELLS



NOTES:

1. TCE = trichloroethylene.
2. µg/L = micrograms per liter.

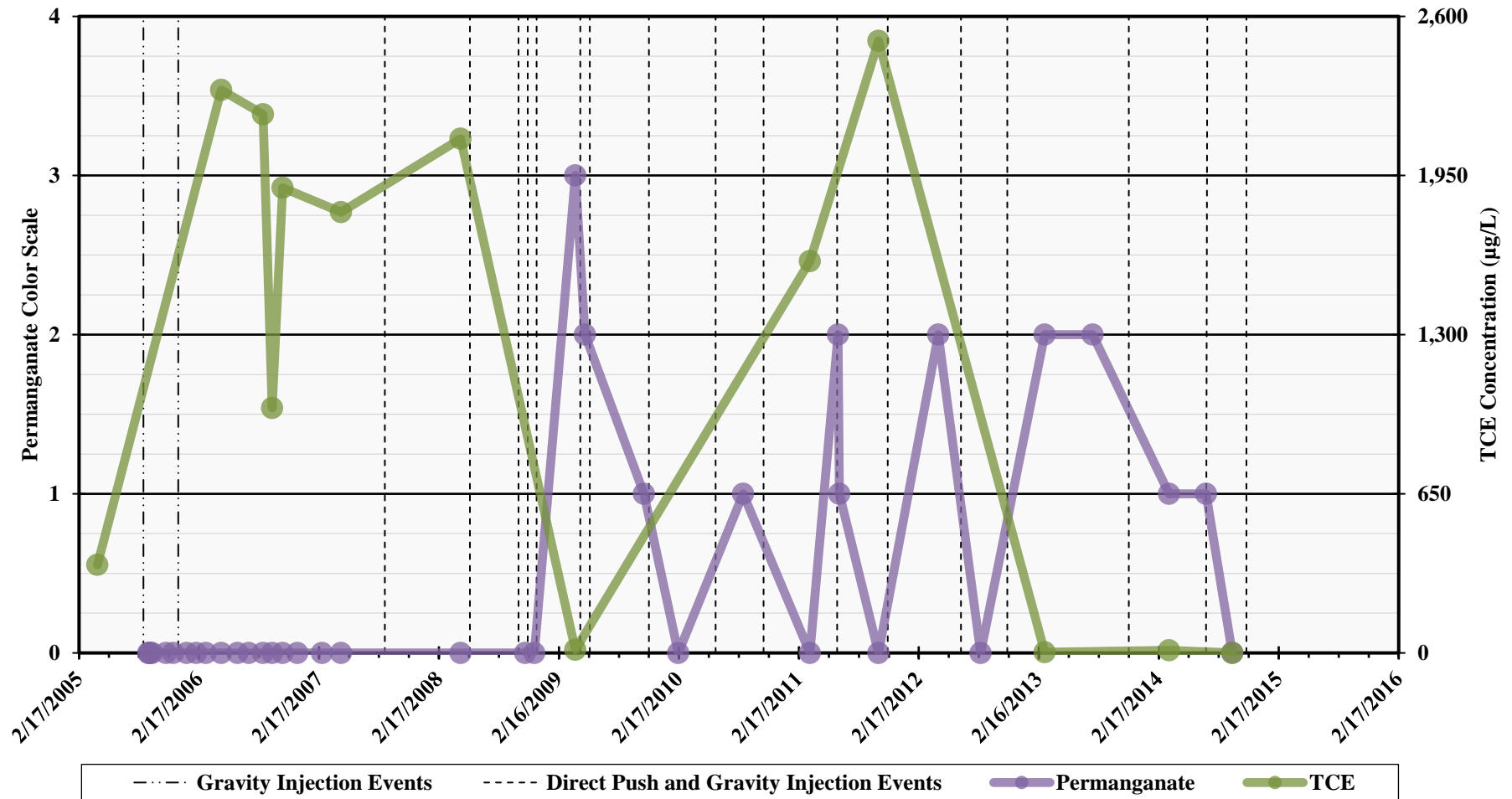
FIGURE 4
WELL MW-211D
SODIUM PERMANGANATE AND TCE CONCENTRATIONS VS. TIME IN DEEP WELLS



NOTES:

1. TCE = trichloroethylene.
2. µg/L = micrograms per liter.

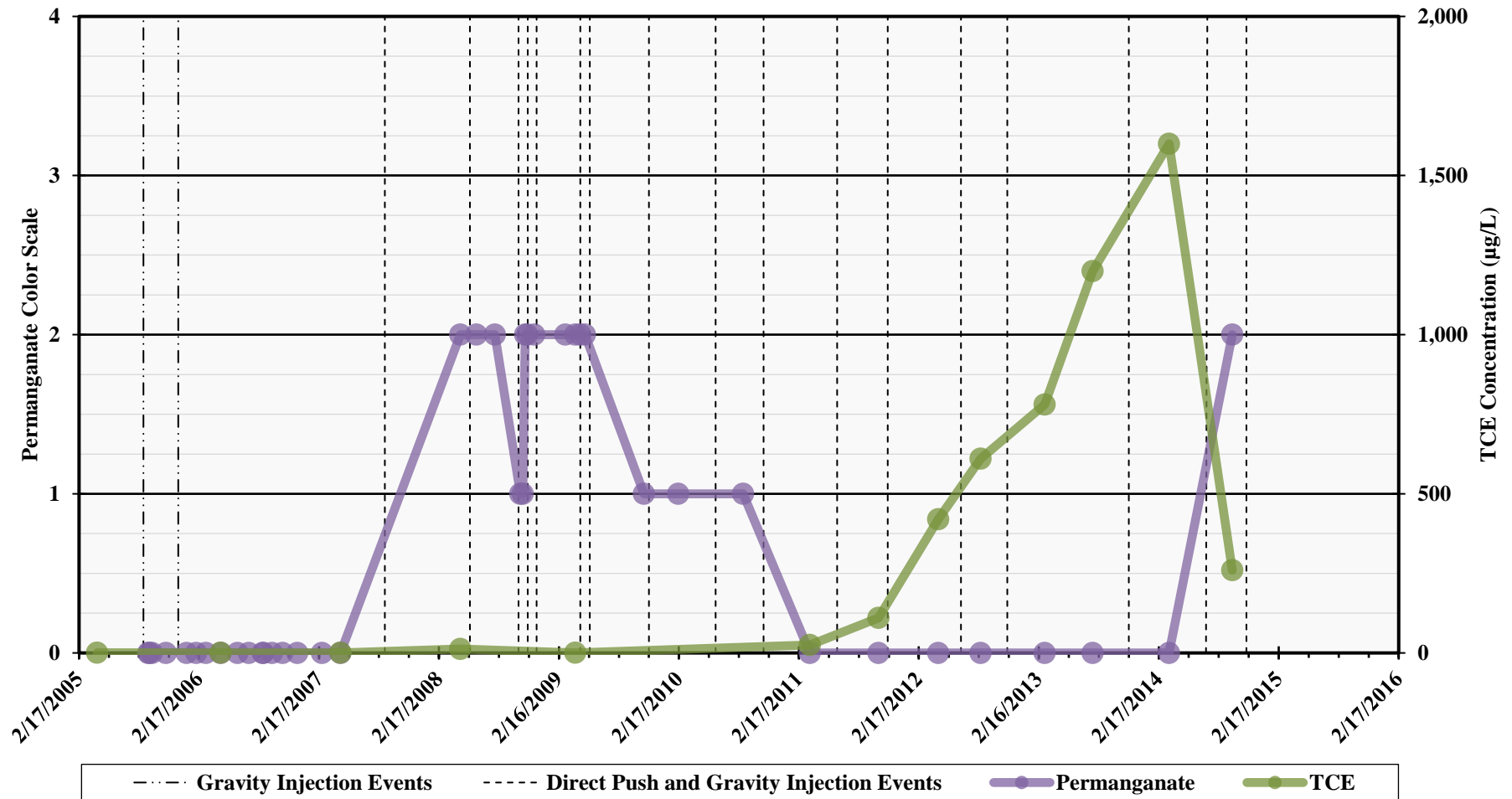
FIGURE 4
WELL MW-212S
SODIUM PERMANGANATE AND TCE CONCENTRATIONS VS. TIME IN SHALLOW WELLS



NOTES:

1. TCE = trichloroethylene.
2. µg/L = micrograms per liter.

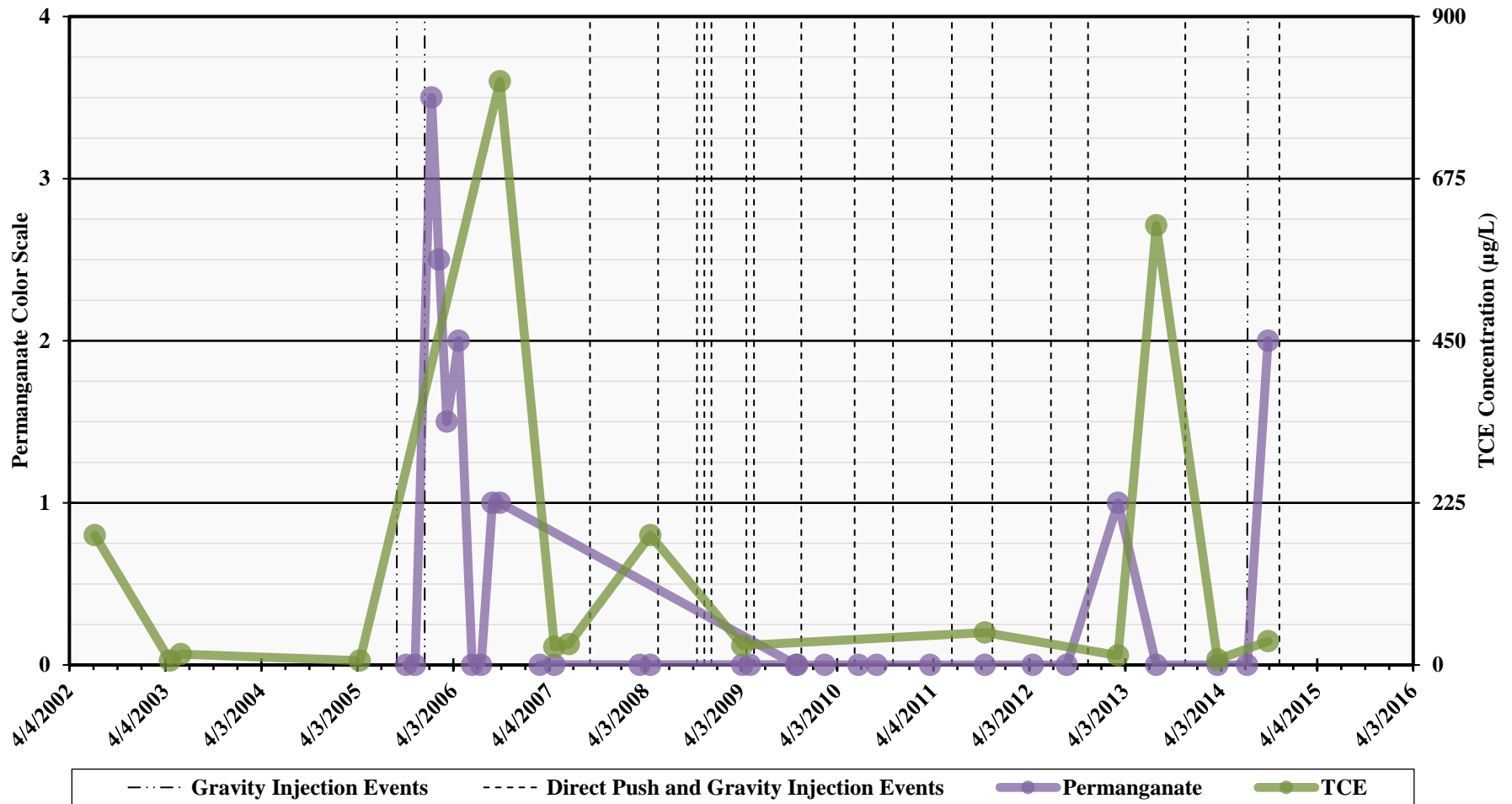
FIGURE 4
EAST OF TREATMENT CELL - WELL MW-217M
SODIUM PERMANGANATE AND TCE CONCENTRATIONS VS. TIME



NOTES:

1. TCE = trichloroethylene.
2. µg/L = micrograms per liter.

FIGURE 4
SOUTHWEST OF TREATMENT CELL - MW-014S
SODIUM PERMANGANATE AND TCE CONCENTRATIONS VS. TIME IN SHALLOW WELLS



NOTES:

1. TCE = trichloroethylene.
2. µg/L = micrograms per liter.